

**Immunomodulatory effect and maternal transmission of a probiotic strain of
Lactobacillus isolated from human milk**

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Little is known about the beneficial effects that probiotics exert in mothers during the pregnancy and breastfeeding periods. Among the probiotics of interest, those isolated from human milk, could be the best candidates for reinforcing immunity of both mothers and litters.

The aim of the present study was to elucidate whether a probiotic supplementation to rats during gestation and lactation periods may influence the immunity of mothers, breast milk composition and even the immune response of the offspring.

For that, Lewis rats were daily administered either with a *Lactobacillus* strain isolated from human milk or vehicle beginning the day of gestation and during the first two weeks of breastfeeding. At the end of the intervention, dam's immunity was evaluated by means of antibody levels as wells as lymphocyte phenotyping and phagocytosis function. Immune variables of the rats at day 14 of life were evaluated. Immune components of breast milk were also studied. The plasmatic lipid profile was evaluated in dams and neonatal rats and in breast milk of lactating mothers. The microbiota composition and the presence of the distribution of the probiotic were also studied.

The results demonstrate that the probiotic is able to modify breast milk composition and modulate the immunity and the intestinal microbiota in dams and offspring as well as their plasmatic lipid profile.

Thus, this strain of probiotic has an immunomodulatory potential in early life due to its ability to promote the immunity of dams and mothers and the quality of the mother's milk composition.

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